Supplementary information

**Biological protective effects against *Vibrio* infections in grouper larvae using the *Strombidium* sp. NTOU1,a marine ciliate amenable for scaled-up culture and with an excellent bacteriovious ability**

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The following supporting information is available for this article:

**Table S1.** The primers used in this study

**Table S2.** The bacterial feeds used in this study

**Figure S1.** The culture of *Strombidium* sp*.* NTOU1 with rice medium

**Table S1. The PCR primers used for cloning**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Amplified gene** | **Primer sequence** | **mer** | **Name** | **cleavage site** |
| EGFP | TATAGAATTCATGGTGAGCAAGGGCGA | 27 | EGFP-Fw | *Eco*RI |
| GATCCTCGAGTTACTTGTACAGCTCGTC | 28 | EGFP-Rv | *Xho*I |

\*The underlined region of each primer indicates the restriction enzyme site incorporated for cloning.

**Table S2. The bacterial feeds used in this study**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Species** | **Source** | **Culture medium** | **Description** | **Reference** |
| *Erwinia* spp. | Rice medium | TSB medium with 3% NaCl | Common plant pathogenic bacteria | This study |
| *Kluyvera* spp. | Rice medium | TSB medium with 3% NaCl | Common pathogenic bacteria in water | This study |
| *Escherichia coli* BL21 strain (DE3) | Commercial (New England Biolabs Inc.) | LB medium | Standard model species | － |
| *Escherichia coli* pET-EGFP strain | This study | LB medium | A modified strain with GFP fluorescence | This study |
| *Vibrio campbellii* | Ill grouper  (*Epinephelus coioides*) | TSB medium with 3% NaCl | Common grouper pathogenic bacteria | Lam et al., 2011 |
| *Vibrio harveyi* | Ill shrimp  *(Litopenaeus vannamei)* | TSB medium with 3% NaCl | Common shrimp pathogenic bacteria | Wang et al., 2010 |

**Fig. S1. The culture of *Strombidium* sp*.* NTOU1 with rice medium.** 5 grains of raw rice were added to 500 mL of artificial seawater and left for overnight before 1 cell/mL ciliates were added to the culture flask. The error bar represents the S. D. of the average from three independent experiments.